Flood Hazard Mitigation in Kinshasa, DRC: A Disaster Risk Reduction Success Story

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OFDA continues to monitor the positive results of flood mitigation and watershed management activities first implemented in Kinshasa in late 1998, which are serving as a basis for planning of future mitigation work in several countries.

The initial intervention began in May 1998, when OFDA approved a Disaster Declaration request for $25,000 to assist in emergency clean-up activities in two communes of Kinshasa. Torrential rains had inundated the homes and businesses of 10,000 commune residents with an estimated 3,000 cubic meters of sand and mud, causing widespread damage and dislocation. An additional 90,000 commune residents were indirectly affected by the flooding and sand/mud inundation, which disrupted transport and adversely affected livelihoods. Catholic Relief Services (CRS) received the emergency funding to undertake clean-up activities.

The intervention focused on the causes, and not simply the effects, of flooding. During the review of the disaster declaration request, questions were raised regarding the proximity of communes to adjacent watersheds, and how vulnerable commune residents would be to a reoccurrence of flooding in the future. Replies to the questions served as the basis for a proposal request to reduce floodwater runoff from the adjacent watershed through a package of disaster reduction measures. OFDA approved the CRS request for approximately $131,000 in late May 1998, and the flood/erosion reduction project was initiated in June 1998.

During the six–month period ending 15 March 1999, 17 small dams were constructed in the watershed adjacent to the communes. These dams were made from bamboo cuttings, grass, and sandbags. Three water retention basins were strengthened, drainage canals were cleaned, and portions of the watershed were seeded with grass. Local residents were organized to perform the work and maintain improvements. Residents were also provided with information on the importance of reducing flood hazards, maintaining drains and waterways free from refuse and other materials, and public health.

Adopted disaster reduction measures were tested severely during the 1999 rainy season. Torrential rains again visited Kinshasa in February 1999, and although two of the 17 dams failed, no flood-related damage was sustained in the two communes, no residents were injured or displaced, and no livelihoods were affected.

The benefits and costs of disaster risk reduction were demonstrated dramatically when the impacts of the adopted measures were assessed. By adopting conservative assumptions -- and only accounting for direct economic losses -- *one dollar of OFDA "investment" in disaster risk reduction in 1998 resulted in a "savings" of at least $45.58 during the 1999 rainy season.* Furthermore, this "savings" has occurred up to the present time, thereby compounding the initial benefit several times over. More importantly, 100,000 project beneficiaries did not have to again incur direct economic losses amounting to $7.1 million, or $71.06 each, in 1999 because of the OFDA "investment" of $1.56 per beneficiary in 1998.

On a per-family basis, OFDA-supported disaster risk reduction measures resulted in a "savings" of $426, or the equivalent of nearly 54 percent of average annual income, thereby enabling families to purchase the food, clothing, medicine, and other essential items that they may have had to forego in the event of a flood reoccurrence.

Again, these benefits have continued to accrue over time because there has not been a repeat of the flooding that occurred in 1998. There was also another beneficiary: OFDA. The 1998 investment in disaster risk reduction eliminated the need for subsequent OFDA disaster response funding in the intervening years, thereby saving time, effort, and money that could be applied to natural and complex disasters elsewhere.

This success was repeated in *another* commune of Kinshasa in 2000-2001. Torrential rains in late 1999 generated similar damage to the housing, possessions, and livelihoods of 50,000 residents. Adopting measures used in the earlier project, CRS received a $45,000 grant from OFDA to support additional mitigation activities, beginning in early 2000. As a result, the commune has not flooded since 2000, proving yet again that small investments in disaster risk reduction can result in large benefits for vulnerable people.

Finally, an additional, unintended benefit of reducing flood risk has been the contributory influence of project activities in improving public health conditions in the commune flooded in 1999. A 2002 study by the DRC Ministry of Health indicated that project risk reduction measures, together with the public health education component of the project, combined to improve commune environmental conditions to such an extent that the *incidence of cholera was reduced by over 90 percent when compared to pre-flood conditions*. The Ministry of Health study thus provides independent support for the claim that flood hazard reduction measures contributed to a significant improvement in public health.